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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM 10-K  
(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES  
EXCHANGE ACT OF 1934 [FEE REQUIRED]  
For the fiscal year ended December 31, 1996

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES  
EXCHANGE ACT OF 1934 [NO FEE REQUIRED]

COMMISSION FILE NUMBER 33-44510

CTA INCORPORATED  
(Exact name of registrant as specified in its charter)

COLORADO 84-0797618  
(State or other jurisdiction of (I.R.S. Employer  
incorporation or organization) Identification No.)

6116 EXECUTIVE BOULEVARD, ROCKVILLE, MD 20852  
(Address of principal executive offices) (Zip Code)

Securities registered pursuant to Section 12(b) of the Act: NONE

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ YES ☐ No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒ [X]

As of FEBRUARY 28, 1997, there were outstanding 4,547,781 shares of the registrant's common stock, par value \$.01, which is the only class of common or voting stock of the registrant. As of that date, the independent appraisal used to determine the aggregate market value of the common stock held by non-affiliates of the registrant had not been completed.

PART I

ITEM 1. BUSINESS

CTA designs, manufactures and integrates small communications and earth-sensing satellites and provides advanced information technology (IT) services principally to government customers. The convergence of CTA's unique strengths in space, information systems and communications technologies has positioned the Company to address space-based telecommunications markets as a turn-key provider of complete satellite systems and has opened opportunities

for the Company as a wireless data service provider. In addition, the Company is well-positioned for continued growth in the civil and commercial IT services markets.

CTA is a leading supplier of small low-earth-orbit (LEO) satellite systems and an emerging competitor in the market for small geosynchronous orbit (GEO) satellite systems. CTA has successfully designed, built and delivered 27 satellites over the past eleven years with seven additional satellites currently under construction. During the next twelve months, the Company is scheduled to deliver three commercial satellites, one satellite for the Air Force and one satellite for NASA.

The Company's satellites perform a variety of commercial, scientific and military missions, including communications, direct-broadcast and space-based imaging. CTA satellites have a record of 100% mission success after reaching orbit. As a complete space systems manufacturer, the Company also designs and manufactures environmental monitoring sensors, advanced payloads for NASA, real-time, high-speed processors for meteorological satellite data and mission control and other specialized ground data and communications systems.

The Company provides its customers with a full range of IT services, with emphasis on large-scale network integration and management, information systems security, mainframe to client/server migration, relational database engineering, electronic data interchange (EDI), and real-time embedded computer systems. In addition to its strong technical and program management capabilities, the Company has established a reputation for customer satisfaction, as reflected in its 100% win rate when re-competing for contracts for which it is the incumbent and average award fee scores in excess of 90%. To date, the Company has completed more than \$1 billion in U.S. government IT contracts.

Combining its strengths in space systems and IT, CTA is currently developing GEMtrak, an automated tracking and cargo status data system for unpowered mobile assets such as truck trailers, railcars and containers. A trucking industry source has estimated that there are 4.5 million truck trailers in the U.S. alone. The Company believes that GEMtrak will reduce trailer monitoring and rental costs and offer fleet owners marketing and revenue enhancement opportunities by providing positive cargo track-and-trace, active manifest control, intrusion sensing and alert, remote asset status monitoring and enhanced asset utilization.

## **COMPANY HISTORY**

The Company was founded in 1979 as Computer Technology Associates Incorporated, specializing in consulting services related to the evaluation of computer systems embedded in larger systems such as spacecraft, missiles and aircraft. In the mid-1980's, the Company's consulting business expanded into systems integration of avionics, command and control, and other decision support systems. The Company established major relationships with U.S. military operations at the DOD's Cheyenne Mountain Complex, the China Lake facility of the U.S. Navy (the "Navy"), NASA's Goddard Space Flight Center (the "GSFC") and the Air Force's Consolidated Space Operations Center. In 1992, the Company's acquisition of CTA Space Systems (CTASS) ended its eligibility for government programs that assist small businesses, with the last significant contract awarded under these programs completed in early 1996. Since 1992, the Company has replaced contracts awarded under these

programs with contracts awarded under full and open competition, growing the share of IT revenues derived from competitive awards from 19% in 1992 to 97% in 1996.

In the 1990's, the Company targeted U.S. government IT contracts that have allowed it to broaden the Company's base of skills to include a number of disciplines equally applicable to the civil federal and state IT markets. In 1995, the Company established strategic alliances with certain specialized software companies that enabled it to enter the commercial IT business and win contracts with commercial customers such as Reynolds Metals and Allied-Signal.

In 1992, the Company acquired a 79% interest in CTASS to expand its business of providing IT services related to space systems to providing full turn-key space systems. In 1994, CTA acquired the remaining minority interest in CTASS. CTASS is a pioneer of small satellite-based store-and-forward technology, which it originally developed to interrogate dispersed buoys equipped with acoustic sensors. In 1993, the Company entered the commercial GEO communications satellite market with CTASS' award of the contract for the Indostar turn-key direct-to-home (DTH) system from PT MediaCitra Indostar. The Indostar program is scheduled to begin service in 1997. The contract provides for the Company to build a small, three-axis stabilized commercial communications satellite and a complete facility in Jakarta, including broadcast and subscriber management software, communications uplinking systems and hardware/software systems for spacecraft telemetry, tracking and control. In addition, CTA is arranging for launch and insurance services and international telecommunications regulatory compliance.

In 1995, the Company combined its skills in space-based communications and large-scale systems integration to develop GEMnet, a system to be comprised of the GEMstar satellite and the GEMtrak automatic tracking and cargo status system. Although the GEMnet project suffered the loss of an experimental satellite due to a launch failure in 1995, which was partially covered by insurance, the Company has responded by extending the GEMtrak system to support multiple wireless data systems, permitting immediate service while retaining the flexibility to support the system at a later date with other wireless media, including future LEO satellite constellations.

## **CORPORATE ORGANIZATION AND STRATEGY**

In 1994, the Company established its three principal business segments: Space and Telecommunications Systems, Information Technology Services and Mobile Information and Communications Services. The Space and Telecommunications Systems business principally designs and manufactures small LEO and GEO satellites and related support systems. The Information Technology Services business comprises the Company's historical business base of providing IT services for a variety of customers. The Mobile Information and Communications Services business unit has been formed to pursue commercial applications of the Company's proprietary technology in innovative IT and space-based or wireless solutions to a variety of applications, including mobile asset tracking and remote fixed asset monitoring.

CTA intends to become a vertically integrated provider of space-based communications services. By leveraging its unique strengths in space, IT and communications technologies, the Company seeks to serve the space-based telecommunications markets as a turn-key provider of complete satellite

systems and pursue opportunities as a wireless data service provider.

## **SPACE AND TELECOMMUNICATIONS SYSTEMS**

CTA is a leading supplier of small LEO satellite systems and an emerging competitor in the market for small GEO satellite systems. CTA has successfully designed, built and delivered 27 satellites over the past eleven years with seven additional satellites currently under construction. During the next twelve months, the Company is scheduled to deliver three commercial satellites, one satellite for the Air Force and one satellite for NASA. CTA satellites have a record of 100% mission success upon reaching orbit. The Company believes that, due to its focus on small space systems and its streamlined management overhead, its cost structure is relatively low as compared to its competitors, and that it is able to deliver completed systems faster than most of its competitors. The Company has unique small satellite products and "on the shelf" designs, along with a hardware inventory that allows rapid delivery, reduces schedule risk and reduces costs. The Company seeks to continue to develop and prove new technologies as part of U.S. government satellite systems and then transfer these new technologies to commercial satellite designs. The Company was one of two prime contractors selected by NASA for the SSTI and Indostar will be the first small DTH satellite. The Company designed and demonstrated the world's first LEO constellation of communications satellites and Company-built satellites for EarthWatch are expected to be the first commercial high resolution remote sensing satellites. Other significant space technology innovations include a low-cost reaction wheel, the first use of the Global Positioning System ("GPS") for small satellite attitude determination, implementation of commercial battery technology, use of lightweight composites for key structural components, digital solid state memory and space-borne encryption technology.

CTA has invested significant resources developing STARbus, a technologically advanced, multi-purpose satellite bus that can be configured to support DTH television, high-bandwidth data transmission or voice communications payloads. Indostar, the first satellite in the STARbus family, is expected to be launched in mid-1997 to provide DTH television in Indonesia.

## **SPACE AND TELECOMMUNICATIONS SYSTEMS--INDUSTRY AND TECHNOLOGY OVERVIEW**

Improvements in space technology have resulted in modern communications satellites with power, capacity, switching capabilities and longevity significantly greater than those of their predecessors. These improvements in performance, together with satellites' inherent geographic coverage and technical advantages, have made satellite-based communications increasingly competitive with other communications technologies, broadening the market for satellite services such as telephony, support for cable and network television, broadband data transmission, paging, DTH broadcasting, earth-sensing and position location.

Large commercial communications satellites generate six to thirteen kilowatts of power, weigh 7,000 to 11,000 pounds and typically cost over \$100 million. Small commercial communications satellites, in contrast, generate up to four kilowatts of power, weigh 3,000 pounds or less at launch and typically cost less than \$50 million. The Company believes that smaller

satellites will capture an increasing share of both the commercial and government satellite market because technological and market changes have made their advantages more compelling.

## COMMERCIAL

Advanced communications technologies, particularly digital signal compression, have enabled satellite systems to emerge as an economically attractive solution to the world's rapidly expanding communications needs. The attractive economics of space-based communications systems, driven by their expansive geographic coverage, have resulted in substantial growth in demand for satellites. Via Satellite, a space-industry periodical, forecasts that over \$54 billion will be invested in building and launching commercial communications satellite systems over the next four years. The Company believes that demand for smaller satellites will increase even more rapidly, driven by their lower cost, faster cycle time from contract award to orbit and sharper mission focus. U.S. government agencies have recently been reorienting their satellite programs toward the use of small satellites in response to changing mission requirements and budget pressures, while demand for real-time information continues to expand. Moreover, a group of small satellites can deliver the functionality of a single larger one at equivalent overall cost, but with reduced launch and operational risks, and the added ability to adapt hardware functionality incrementally in response to changing user needs by changing the designs of later satellites in the series. In addition, less developed countries and emerging communications businesses are beginning to evaluate small satellites as entry level systems that address immediate communications needs quickly and inexpensively, while providing flexibility to add capacity and capabilities over time as demand evolves and technology advances.

## GOVERNMENT

Many of the same technological and market changes that make small satellites more attractive to commercial customers also are occurring in the government satellite market. The report of the Small Satellite Review Panel to the Director of Central Intelligence in June 1996 called for a shift in the architecture of the nation's space reconnaissance assets from one based on very large-scale systems focused on the threat of the former Soviet Union across the northern polar region to an array of smaller, less expensive spacecraft in larger numbers with equivalent or superior total capacity that can acquire relevant data anywhere in the world. The panel recommended an array of satellites 20% to 25% of the weight of current reconnaissance satellites, with 40% to 50% of their capabilities. In addition to lowering costs, such an array would be more robust, with less operational capability at risk for any given satellite, and more flexible, with a much greater capability to rebalance the system from time to time to achieve a different mix of capabilities.

NASA is also shifting its procurement priorities toward the development of small satellites that permit incorporation of advanced technologies as they develop, rather than building a larger spacecraft requiring earlier design commitments. As a key component of NASA's announced plan to develop "*smaller, faster, cheaper*" satellites, NASA's SSTI will develop and apply advanced miniaturization, design and production technology for spacecraft design and instrumentation to reduce the size of satellites and the cost of space missions. The major goals of the SSTI are to increase the capabilities

of small satellites and to reduce the cost and development time of space missions for science and commercial applications.

As a result of this broadening of national intelligence priorities and increasing governmental budgetary constraints, CTA expects that U.S. government expenditures on small satellites will grow from \$300 million in 1995 to \$900 million in 2000.

## **SPACE AND TELECOMMUNICATIONS SYSTEMS--BUSINESS STRATEGY**

The principal strategies that CTA is pursuing to grow its share of the small space systems market include:

**OFFERING TURN-KEY SATELLITE SYSTEMS.** To enhance its competitive position, CTA is combining its space, communications and IT expertise to provide full turn-key satellite systems to its commercial customers, including delivery of the satellite on orbit and the design, procurement and installation of all of the necessary ground control and communications equipment. The Company believes that turn-key satellite systems will be particularly attractive to less-developed countries and emerging communications businesses that do not otherwise have the experience or resources to coordinate the launch and support of a satellite.

### **MARKETING SPACECRAFT BASED ON THE MULTI-PURPOSE STARBUS PLATFORM.**

CTA has developed STARbus, a technologically advanced, multi-purpose satellite bus that can be configured to support DTH television, high-bandwidth data transmission, or voice communications payloads. The Company expects that the low cost and technical superiority of this flexible design, which is capable of generating up to 3.5 kilowatts of power, will enable the Company to adapt it to a variety of payloads and thereby capture additional market share in a growing segment of commercial communications satellite industry, supporting a range of missions from both LEO and GEO and supporting video, voice and data services.

**FOCUSING ON "SMALLER, FASTER, CHEAPER" SATELLITE SYSTEMS.** CTA is focused on lowering the cost, shortening the cycle time from award to launch and adding advanced technology to enable the Company to win an increasing share of what the Company believes will be a growing market for smaller satellites. The Company's strategy is to use "on-the-shelf" designs, maintain inventory of long lead-time, critical components, use common parts in multiple designs and build on its record of technical innovation.

**PARTICIPATING IN SATELLITE-BASED SERVICES BUSINESSES THROUGH PARTNERSHIPS WITH COMMERCIAL CUSTOMERS.** The Company is participating in and will seek to expand into space-based communications services in partnership with commercial satellite service customers such as PT MediaCitra Indostar and EarthWatch.